



# Australian Bureau of Statistics

## 3238.0.55.001 - Experimental Estimates of Aboriginal and Torres Strait Islander Australians, Jun 2006

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## Summary

### Main Features

**15/09/2009 Note: Additional data cube.** This additional data cube presents final experimental estimates of the Aboriginal, Torres Strait Islander, both Aboriginal and Torres Strait Islander, total Indigenous, non-Indigenous and total populations of Australia as at 30 June 2006, based on the 2006 Census of Population and Housing.

### NOTES

This product contains final experimental estimates of the Aboriginal and Torres Strait Islander (Indigenous), non-Indigenous and total populations of Australia at 30 June 2006, for various geographies.

Estimates are disaggregated by age (5-year age groups) and sex for state and territory, Remoteness Areas and Indigenous Regions. Estimates for Statistical Local Areas are available for total all ages only.

The estimates of the Indigenous and non-Indigenous populations presented in this publication are experimental. The estimates are based on 2006 Census of Population and Housing counts of Aboriginal and Torres Strait Islander Australians adjusted for net undercount as measured by the Post Enumeration Survey. The extent of undercoverage of Aboriginal and Torres Strait Islander Australians in the 2006 census and the relatively small sample size of the Post Enumeration Survey to adjust for that undercoverage means the estimates should be interpreted with caution.

Description of the methods used to produce the estimates are contained in the technical note in this product.

### INQUIRIES

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070.

### SUMMARY COMMENTARY

#### AUSTRALIA'S ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLES

This publication presents the final population estimates of Aboriginal and Torres Strait Islander (Indigenous) Australians as at 30 June 2006. They replace the preliminary

estimates released on 24 September 2007 in Australian Demographic Statistics, March Quarter 2007 (cat. no. 3101.0). While the Australian level estimates have changed little since the preliminary estimates, the estimates at the state/territory level have been revised significantly in some cases following the adoption of a different methodology to account for census undercount. Details of the methodology are provided in Technical Note: Estimated Aboriginal and Torres Strait Islander Australian Resident Population - Method of Calculation.

The estimates of the Indigenous and non-Indigenous populations presented in this publication are experimental. The estimates are based on 2006 Census of Population and Housing counts of Aboriginal and Torres Strait Islander Australians adjusted for net undercount as measured by the Post Enumeration Survey. The extent of undercoverage of Aboriginal and Torres Strait Islander Australians in the 2006 census and the relatively small sample size of the Post Enumeration Survey to adjust for that undercoverage means the estimates should be interpreted with caution.

The final estimated resident Indigenous population of Australia as at 30 June 2006 was 517,000 people, or 2.5% of the total Australian population.

Of the states and territories, NSW had the largest population of Indigenous Australians (152,700 people), followed by Queensland (144,900 people). The Australian Capital Territory had the smallest population of Indigenous Australians (4,300 people).

Indigenous Australians comprised 30% of the population of the Northern Territory.

### **Experimental estimated resident population, Indigenous status - 30 June 2006**

	Estimated resident population		Median age	
	Indigenous no.	Non-Indigenous no.	Indigenous years	Non-Indigenous years
<b>Males</b>				
NSW	76 229	3 299 271	19.7	36.3
Vic.	16 581	2 518 487	20.9	36.0
Qld	71 950	1 969 341	19.6	36.0
SA	13 790	760 263	20.5	38.0
WA	35 775	1 003 270	21.1	36.1
Tas.	9 204	232 352	19.8	38.7
NT	31 514	77 801	21.3	35.2
ACT	2 147	163 156	20.8	33.8
Aust.(a)	257 309	10 025 124	20.2	36.3
<b>Females</b>				
NSW	76 456	3 364 131	21.6	37.9
Vic.	16 936	2 574 536	21.6	37.7
Qld	72 935	1 976 682	21.1	37.2
SA	14 265	779 570	22.0	40.2
WA	35 191	985 145	22.1	37.4
Tas.	9 211	239 184	21.5	40.5
NT	32 491	68 821	23.3	33.9
ACT	2 135	166 681	21.5	35.3
Aust.(a)	259 734	10 155 713	21.8	37.8
<b>Persons</b>				
NSW	152 685	6 663 402	20.6	37.1
Vic.	33 517	5 093 023	21.2	36.8

Qld	144 885	3 946 023	20.4	36.6
SA	28 055	1 539 833	21.2	39.1
WA	70 966	1 988 415	21.5	36.8
Tas.	18 415	471 536	20.6	39.6
NT	64 005	146 622	22.3	34.6
ACT	4 282	329 837	21.1	34.5
Aust.(a)	517 043	20 180 837	21.0	37.0

(a) Includes Other Territories.

Among the Indigenous population in 2006, 463,700 or 90% were estimated as being of Aboriginal origin only, 33,300 or 6% were of Torres Strait Islander origin only, and 20,100 or 4% were of both Aboriginal and Torres Strait Islander origin.

### Experimental estimated resident population, Indigenous status, 30 June 2006

	Aboriginal only no.	Torres Strait Islander only no.	Both Aboriginal and Torres Strait Islander no.	Total Indigenous no.	Non- Indigenous no.	Total no.
NSW	144 236	5 248	3 201	152 685	6 663 402	6 816 087
Vic.	30 178	2 421	918	33 517	5 093 023	5 126 540
Qld	112 095	20 902	11 888	144 885	3 946 023	4 090 908
SA	26 483	1 121	451	28 055	1 539 833	1 567 888
WA	68 526	1 253	1 187	70 966	1 988 415	2 059 381
Tas.	16 350	1 377	688	18 415	471 536	489 951
NT	61 616	757	1 632	64 005	146 622	210 627
ACT	4 004	173	105	4 282	329 837	334 119
Aust.(a)	463 706	33 267	20 070	517 043	20 180 837	20 697 880

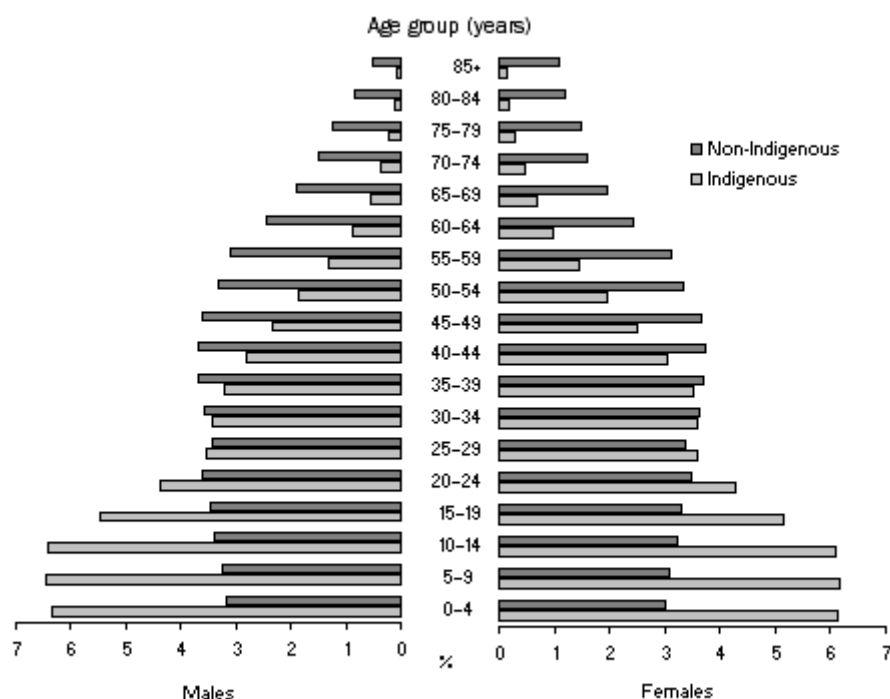
### Remoteness Areas

At 30 June 2006, around one-third of all Indigenous Australians lived in Major Cities of Australia (32% or 165,800 people). A further 21% (110,600 people) lived in Inner Regional Australia and 22% (113,300 people) in Outer Regional Australia. The remainder lived in Remote Australia (9% or 47,900 people) or Very Remote Australia (15% or 79,500 people).

### Age structure

The Indigenous population at 30 June 2006 had a younger age structure than the non-Indigenous population, with larger proportions of young people and smaller proportions of older people. The median age of the Indigenous population at 30 June 2006 was 21.0 years, compared to 37.0 years for the non-Indigenous population.

### INDIGENOUS AND NON-INDIGENOUS POPULATION - 30 JUNE 2006



## About this Release

Contains final experimental estimates of the Aboriginal and Torres Strait Islander (Indigenous), non-Indigenous and total populations of Australia at 30 June 2006, based on the 2006 Census of Population and Housing, for various geographies.

Estimates are disaggregated by age (5-year age groups) and sex for state and territory, Remoteness Areas and Indigenous Regions. Estimates for Statistical Local Areas are available for total all ages only.

## Explanatory Notes

### Explanatory Notes

#### EXPLANATORY NOTES

#### INTRODUCTION

**1** This product contains final experimental estimates of the Aboriginal and Torres Strait Islander (Indigenous), non-Indigenous and total populations of Australia at 30 June 2006, based on results of the 2006 Census of Population and Housing.

2 Estimates are disaggregated by age and sex for states/territories, Remoteness Areas and Indigenous Regions. Estimates for Statistical Local Areas are available for total all ages only.

**ESTIMATED RESIDENT POPULATION**

3 Estimated resident population (ERP) is the official measure of the population of Australia, based on the concept of usual residence within Australia. Usual residence is that place where each person has lived or intends to live for six months or more from the reference date for data collection.

4 The estimates of the Indigenous and non-Indigenous populations presented in this publication are experimental. The estimates are based on 2006 Census of Population and Housing counts of Aboriginal and Torres Strait Islander Australians adjusted for net undercount as measured by the Post Enumeration Survey. The extent of undercoverage of Aboriginal and Torres Strait Islander Australians in the 2006 census and the relatively small sample size of the Post Enumeration Survey to adjust for that undercoverage means the estimates should be interpreted with caution. For more information on data quality see paragraphs 9 to 22 of the Explanatory Notes and [Technical Note: Estimated Aboriginal and Torres Strait Islander Australian Resident Population - Method of Calculation](#).

**INDIGENOUS STATUS**

5 The Indigenous population of Australia comprises people who are of Aboriginal origin, Torres Strait Islander origin or both Aboriginal and Torres Strait Islander origin. The Commonwealth definition of an Aboriginal or Torres Strait Islander person is:

- a person of Aboriginal or Torres Strait Islander descent who;
- identifies as being of Aboriginal or Torres Strait Islander origin and who is;
- accepted as such by the community with which the person associates.

6 The 2006 Census of Population and Housing (Household Form) asked the following question of each person:

**2006 Census of Population and Housing - Question 7.**

<b>7</b> Is the person of Aboriginal or Torres Strait Islander origin? • For persons of both Aboriginal and Torres Strait Islander origin, mark both 'Yes' boxes.	<input type="radio"/> No <input type="radio"/> Yes, Aboriginal <input type="radio"/> Yes, Torres Strait Islander
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**METHOD OF ESTIMATION**

7 Estimated resident population by Indigenous status are compiled using census, Post Enumeration Survey (PES) and other demographic information. Starting with census counts by place of usual residence, a number of steps are involved. These include:

- Imputation of Indigenous status for census records with unknown Indigenous status (as a result of either non-response to the Aboriginal and Torres Strait Islander origin question in the census, or unknown Indigenous status on census records imputed by the Australian Bureau of Statistics (ABS) when a form could not be obtained from

occupied dwellings identified in the field);

- An allowance for net census undercount: in a complex exercise such as the census, it is inevitable that some people will be missed and some will be included more than once. The PES, conducted three weeks after census night, collects information about where people were on census night and their characteristics to estimate net census undercount;
- An estimate of the number of Australian residents temporarily overseas at the time of the census;
- Backdating from the census date of 8 August 2006 to the ERP reference date of 30 June 2006 using data on births, deaths, and interstate and overseas migration for the intervening period;
- Minor demographic adjustments designed to address any anomalies in age and sex composition.

**8** For further information, see [Technical Note: Estimated Aboriginal and Torres Strait Islander Australian Resident Population - Method of Calculation.](#)

## **DATA QUALITY**

### **Census**

**9** The ABS aims to produce high quality data from the census. To achieve this, extensive effort is put into census form design, collection procedures, and processing procedures. There are four principle sources of error in census data: partial response, processing error, respondent error and undercount.

**10** Partial response: When completing their census form, some people do not answer all the questions which apply to them. While questions of a sensitive nature are generally excluded from the census, all topics have a level of non-response. However, this level can be measured and is generally low. In those instances where a householder fails to answer a question, a not stated code is allocated during processing, with the exception of non-response to age, sex, marital status and place of usual residence. These variables are needed for population estimates, so they are imputed using other information on the census form, as well as aggregate data from the previous census.

**11** Processing error: The processing of information from census forms is now mostly automated, using scanning, Intelligent Character Recognition and other automatic processes. Quality assurance procedures are used during census processing to ensure processing errors are kept at an acceptable level. Sample checking is undertaken during coding operations, and corrections are made where necessary.

**12** Respondent error: The census form may be completed by one household member on behalf of others. Incorrect answers can be introduced to the census form if the respondent does not understand the question or does not know the correct information about other household members. Many of these errors remain in the final data.

**13** Undercount: The goal of the census is to obtain a complete measure of the number and characteristics of people in Australia on census night and their dwellings, but it is inevitable that a small number of people will be missed and some will be counted more than once. In Australia, more people are missed from the census than are counted more than once. The net effect when both factors are taken into account is an undercount.

**14** Each of these sources of error are particularly relevant to, and have the potential to

significantly impact on, the census counts of Aboriginal and Torres Strait Islander Australians.

**15** Further information on census data quality is available in Census Dictionary, 2006 (cat. no. 2901.0) and 2006 Census Data Quality Working Papers, available on the ABS web site [www.abs.gov.au/census](http://www.abs.gov.au/census).

### **The Post Enumeration Survey (PES), sampling error and undercount**

**16** Due to the uncertainty in Indigenous census counts as well as the method of estimating net undercount of the Indigenous population, estimates presented in this product should be interpreted with caution.

**17** The ABS conducts the PES shortly after the census to determine how many people were missed in the census and how many were counted more than once. The design of the survey is such that estimates of net undercount are suitable for augmenting census counts for the purpose of deriving population estimates for Australia and the states and territories. For 2006, the survey had a sample size of around 40,000 households across Australia.

**18** As estimates of undercount are based on a sample survey they are subject to sampling error. Since only a sample of dwellings is included in the PES, estimates derived from the survey may differ from figures which would have been obtained if all dwellings had been included in the survey. One measure of the likely difference is given by the standard error (SE) which indicates the extent to which an estimate might have varied by chance because only a sample was included. The relative standard error (RSE) is the standard error expressed as a percentage of the estimate to which it refers.

**19** For Australia, the direct estimate of the Indigenous population obtained from the PES was 513,977 persons, with a standard error of 13,309 (a relative standard error (RSE) of 2.6%).

**20** For the states and territories, the preliminary estimates obtained from the PES of the census night population (referred to as the 'PES estimate') were subject to high RSEs (ranging from 3.5% for the NT to 7.3% for WA). A study has been subsequently undertaken to examine methodologies that would result in more reliable estimates. The outcome of the study was that an Empirical Bayes method has been adopted for compiling the final estimates.

**21** The PES sample is insufficient to produce estimates of net undercount by Indigenous status at the sub-state/territory level. Undercount was therefore apportioned to Statistical Local Areas based on age, sex, Indigenous status and state/territory.

**22** It is important to note that at the sub-state/territory level, differences between census counts and estimates of the Indigenous population are not indicative of, nor should be interpreted as, the true level of undercount; rather, these differences are a by-product of the assumptions that contribute to the estimation process.

**23** For further information see Technical Note: Estimated Aboriginal and Torres Strait Islander Australian Resident Population - Method of Calculation.

**24** For further information on the Post Enumeration Survey see Census of Population and Housing - Undercount, 2006 (cat. no. 2940.0), Information Paper: Measuring Net Undercount in the 2006 Population Census, 2007 (cat. no. 2940.0.55.001), Research Paper: An Estimating Equation Approach to Census Coverage Adjustment, May 2007 (cat. no.

## AUSTRALIAN STATISTICAL AREAS

**25** This publication contains data presented according to a number of geographic classifications: the Main Structure of the Australian Standard Geographical Classification (ASGC), Remoteness Areas (RA) and the Australian Indigenous Geographical Classification (AIGC).

### Australian Standard Geographical Classification - Main Structure

**26** Under the Main Structure of the Australian Standard Geographical Classification, statistical areas are defined in ascending order as follows:

- Statistical Local Areas (SLAs): These areas are, in most cases, identical with, or have been formed from a division of, whole Local Government Areas (LGAs). In other cases they represent unincorporated areas. In aggregate, SLAs cover the whole of a state or territory without gaps or overlaps. In some cases legal LGAs overlap Statistical Subdivision boundaries and therefore comprise two or three SLAs (Part A, Part B and, if necessary, Part C).
- Statistical Subdivisions (SSDs): These are of intermediate size, between SLAs and Statistical Divisions (SDs). In aggregate, they cover the whole of Australia without gaps or overlaps. They are defined as socially and economically homogeneous regions characterised by identifiable links between the inhabitants. In non-urban areas an SSD is characterised by identifiable links between the economic units within the region, under the unifying influence of one or more major towns or cities.
- Statistical Divisions (SDs): These consist of one or more SSDs. The divisions are designed to be relatively homogeneous regions characterised by identifiable social and economic units within the region, under the unifying influence of one or more major towns or cities. There were some major changes made to the SD structure in south-east Queensland in the 2006 edition of the ASGC.
- State/territory (S/T): The state/territory is the largest spatial unit in the Main Structure and in the ASGC. Six states and five territories are recognised in the ASGC: New South Wales, Victoria, Queensland, South Australia, Western Australia, Tasmania, Northern Territory, Australian Capital Territory, Jervis Bay Territory and the External Territories of Christmas Island and Cocos (Keeling) Islands.

**27** In this publication, Jervis Bay Territory, Christmas Island and Cocos (Keeling) Islands are collectively referred to as 'Other Territories' and are included in totals for Australia.

**28** For further information see Australian Standard Geographical Classification (ASGC), Jul 2006 (cat. no. 1216.0).

### Remoteness Areas

**29** Remoteness Areas (RA) are the spatial units that make up the ASGC Remoteness Classification. There are six classes of Remoteness Area in the Remoteness Structure: Major Cities of Australia, Inner Regional Australia, Outer Regional Australia, Remote Australia, Very Remote Australia and Migratory.

**30** Within a state/territory, each RA represents an aggregation of non-contiguous geographical areas which share common characteristics of remoteness.

**31** While statistical data classed to this structure may be available by state/territory, characteristics of remoteness are determined in the context of Australia as a whole. Therefore, not all RAs are represented in each state/territory.

**32** For further information see Australian Standard Geographical Classification (ASGC), Jul 2006 (cat. no. 1216.0).

## **Australian Indigenous Geographical Classification**

**33** Data are also presented according to the Australian Indigenous Geographical Classification (AIGC) which refers to boundaries as defined at 1 July 2006. Under this classification, areas are defined as follows:

- Indigenous Regions (IREG): The Australian Government uses 30 Indigenous Coordination Centres (ICC) and the Torres Strait Regional Authority (TSRA) to manage the delivery of a range of services to Aboriginal and Torres Strait Islander peoples across Australia. For census purposes, the ABS defines Indigenous Regions based on ICC and TSRA areas. In aggregate, IREGs cover the whole of Australia without gaps or overlaps.

**34** For further information see Maps and Census Profiles, Australian Indigenous Geographical Classification, 2006 (cat. no. 4706.0.30.001).

## **CONFIDENTIALITY**

**35** The **Census and Statistics Act, 1905** provides the authority for the ABS to collect statistical information, and requires that statistical output shall not be published or disseminated in a manner that is likely to enable the identification of a particular person or organisation. This requirement means that the ABS must take care that identifiable information about individual respondents cannot be derived from published data.

**36** To protect confidentiality within this publication, some small cell values have been adjusted. No reliance should be placed on cells with small values.

**37** In addition, some Remoteness Areas in the states and territories have been combined to protect confidentiality. In Victoria, Outer Regional Australia and Remote Australia have been combined to produce Balance of Victoria. In Tasmania, Outer Regional Australia, Remote Australia, and Very Remote Australia have been combined to produce Balance of Tasmania. Remoteness Areas are not available for the ACT in this product.

## **FURTHER INFORMATION**

### **Related publications and references**

**38** Other ABS publications that may be of interest to users of this product include:

- Australian Demographic Statistics (cat. no. 3101.0)
- Australian Historical Population Statistics (cat. no. 3105.0.65.001)

- Births, Australia (cat. no. 3301.0)
- Census Dictionary, 2006 (cat. no. 2901.0)
- Census of Population and Housing - Details of Undercount, Aug 2006 (cat. no. 2940.0)
- Census of Population and Housing - Undercount, 2006 (cat. no. 2940.0)
- Deaths, Australia (cat. no. 3302.0)
- Demography Working Paper 2001/4 - Issues in Estimating the Indigenous Population, 2001 (cat. no. 3126.0)
- Demography Working Paper 2004/3 - Calculating Experimental Life Tables for Use in Population Estimates and Projections of Aboriginal and Torres Strait Islander Australians (cat. no. 3106.0.55.003)
- Experimental Estimates of the Aboriginal and Torres Strait Islander Population, 1991 to 1996 (cat. no. 3230.0)
- Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2009 (cat. no. 3238.0)
- Experimental Projections of the Aboriginal and Torres Strait Islander Population, 1996 to 2006 (cat. no. 3231.0)
- Information Paper: Measuring Net Undercount in the 2006 Population Census, 2007 (cat. no. 2940.0.55.001)
- Occasional Paper: Population Issues, Indigenous Australians, 1996 (cat. no. 4708.0)
- Population Characteristics, Aboriginal and Torres Strait Islander Australians, 2006 (cat. no. 4713.0)
- Population Distribution, Aboriginal and Torres Strait Islander Australians, 2006 (cat. no. 4705.0)
- The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 2008 (cat. no. 4704.0)

**39** Current publications and other products released by the ABS are listed on the ABS web site [www.abs.gov.au](http://www.abs.gov.au).

**40** As well as the statistics included in this and related publications, additional information is available from the ABS web site at [www.abs.gov.au](http://www.abs.gov.au) and accessing Themes/Demography.

**41** Related publications and articles which may also be of interest are:

- **The Aboriginal Population of Australia**, Smith, L.R., Australian National University Press, Canberra (1980).

## Glossary

### GLOSSARY

#### Census

The complete enumeration of a population or groups at a point in time with respect to well-defined characteristics (eg Population, Manufacturing, etc.). When the word is capitalised, "Census" usually refers to the national Census of Population and Housing.

#### Collection District (CD)

The smallest geographic area defined in the Statistical Geography: Volume 1 - Australian Standard Geographical Classification (ASGC) (cat. no.1216.0).

## Dwelling

A dwelling is a structure which is intended to have people live in it, and which is habitable on Census Night. Some examples of dwellings are houses, motels, flats, caravans, prisons, tents, humpies and houseboats.

There are private and non-private dwellings:

- A private dwelling is normally a house, flat, part of a house, or even a room; but can also be a house attached to, or rooms above, shops or offices; an occupied caravan or unit in a caravan park or craft in a marina; occupied dwelling in a Manufactured Home Estate; occupied self-care unit in Accommodation for the Retired or Aged; a houseboat; or tent if it is standing on its own block of land. An occupied caravan situated on a residential allotment is also classed as a private dwelling. Private dwellings can be either occupied or unoccupied.
- Non-private dwellings are those dwellings not included above, which provide a communal or transitory type of accommodation. They are classified according to their function. These dwellings include hotels, motels, guest houses, prisons, religious and charitable institutions, defence establishments, hospitals and other communal dwellings. Only occupied non-private dwellings are included in the census.

## Estimated resident population (ERP)

The official measure of the population of Australia is based on the concept of usual residence. It refers to all people, regardless of nationality or citizenship, who usually live in Australia, with the exception of foreign diplomatic personnel and their families. It includes usual residents who are overseas for less than 12 months. It excludes overseas visitors who are in Australia for less than 12 months.

Estimates of the Australian resident population are generated on a quarterly basis by adding natural increase (the excess of births over deaths) and net overseas migration (NOM) occurring during the period to the population at the beginning of each period. This is known as the cohort component method, and can be represented by the following equation:

$P_{t+1} = P_t + B - D + \text{NOM}$ , where:

$P_t$  = the estimated resident population at time point  $t$

$P_{t+1}$  = the estimated resident population at time point  $t+1$

$B$  = the number of births occurring between  $t$  and  $t+1$

$D$  = the number of deaths occurring between  $t$  and  $t+1$

NOM = net overseas migration occurring between  $t$  and  $t+1$ .

NIM = net interstate migration occurring between  $t$  and  $t+1$ .

For state and territory population estimates, an additional term is added to the equation representing net interstate migration occurring between  $t$  and  $t+1$ , represented by the

following equation:

$$P_{t+1} = P_t + B - D + NOM + NIM.$$

## **Household**

A household is a group of two or more related or unrelated people who usually reside in the same dwelling who regard themselves as a household and who make common provision for food or other essentials for living; or a person living in a dwelling who makes provision for his or her own food and other essentials for living, without combining with any other person. Households include group households of unrelated persons, same-sex couple households, single-parent households as well as one-person households.

A household usually resides in a private dwelling (including caravans etc. in caravan parks). Persons usually resident in non-private dwellings, such as hotels, motels, boarding houses, gaols and hospitals, are not included in household estimates.

This definition of a household is consistent with the definition used in the census.

## **Indigenous**

Refers to people who identified themselves, or were identified by another household member, as being of Aboriginal and/or Torres Strait Islander.

## **Local Government Area (LGA)**

LGA is a spatial unit which represents the whole geographical area of responsibility of an incorporated Local Government Council, an Aboriginal or Island Council in Queensland, or a Community Government Council (CGC) in the Northern Territory. An LGA consists of one or more SLAs. LGAs aggregate directly to form the incorporated areas of states/territories. The creation and delimitation of LGAs is the responsibility of the state and territory Governments. The number of LGAs, their names and their boundaries vary over time. Further information concerning LGAs is contained in Statistical Geography: Volume 1 - Australian Standard Geographical Classification (ASGC) (cat. no.1216.0).

## **Median age**

For any distribution the median value is that which divides the relevant population into two equal parts, half falling below the value, and half exceeding it. Thus, the median age is the age at which half the population is older and half is younger.

## **Net undercount**

The difference between the actual Census count (including imputations) and an estimate of the number of people who should have been counted in the Census. This estimate is based on the PES conducted after each Census. For a category of person (e.g. based on age, sex and state of usual residence), net undercount is the resultant of Census undercount, overcount, misclassification and imputation error.

## **Post Enumeration Survey**

The Census Post Enumeration Survey (PES) is a household survey conducted three to four weeks after the Census. The PES allows the ABS to estimate the number of people missed in the Census and the number counted more than once. Usually more people are missed

than counted more than once in Australia, leading to a net undercount. Results from the PES contribute to a more accurate calculation of the estimated resident population (ERP) for Australia and the states and territories which is then backdated to 30 June of the Census year.

### **Relative Standard Error (RSE)**

The relative standard error is the standard error expressed as a percentage of the estimate to which it refers, and is useful when comparing the variability of estimates of different sizes.

### **Standard Error (SE)**

A measure of the variation among the estimates from all possible samples, and thus a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. The units of the standard error are the same as the variable of interest.

### **State or territory and Statistical Local Area of usual residence**

State or territory and Statistical Local Area (SLA) of usual residence refers to the state or territory and SLA of usual residence of:

- the population (estimated resident population);
- the mother (birth collection); and
- the deceased (death collection).

In the case of overseas movements, state or territory of usual residence refers to the state or territory regarded by the traveller as the one in which he/she lives or has lived. State or territory of intended residence is derived from the intended address given by settlers, and by Australian residents returning after a journey abroad. Particularly in the case of the former, this information does not necessarily relate to the state or territory in which the traveller will eventually establish a permanent residence.

### **Statistical District (S Dist)**

Statistical Districts (S Dist) consist of selected, significant, predominantly urban areas in Australia which are not located within a Capital City Statistical Division (SD). S Dists enable comparable statistics to be produced about these selected urban areas. Further information concerning S Dists is contained in Statistical Geography: Volume 1 - Australian Standard Geographical Classification (ASGC) (cat. no.1216.0).

### **Statistical Division (SD)**

Statistical Divisions (SD) consist of one or more Statistical Subdivisions (SSD). These are designed to be relatively homogeneous regions characterised by identifiable social and economic units within the region, under the unifying influence of one or more major towns or cities. Information concerning SDs is contained in Statistical Geography: Volume 1 - Australian Standard Geographical Classification (ASGC) (cat. no.1216.0).

### **Statistical Local Area (SLA)**

Statistical Local Areas (SLA) are, in most cases, identical with, or have been formed from a division of, whole Local Government Areas (LGA). In other cases, they represent unincorporated areas. In aggregate, SLAs cover the whole of a state or territory without

gaps or overlaps. In some cases legal LGAs overlap statistical subdivision boundaries and therefore comprise two or three SLAs (Part A, Part B and, if necessary, Part C). Further information concerning SLAs is contained in Statistical Geography: Volume 1 - Australian Standard Geographical Classification (ASGC) (cat. no.1216.0).

### **Statistical Subdivision (SSD)**

Statistical Subdivisions (SSD) are of intermediate size, between Statistical Local Areas (SLA) and Statistical Divisions (SD). In aggregate, they cover the whole of Australia without gaps or overlaps. They are defined as socially and economically homogeneous regions characterised by identifiable links between the inhabitants. In the non-urban areas an SSD is characterised by identifiable links between the economic units within the region, under the unifying influence of one or more major towns or cities. Further information concerning SSDs is contained in Statistical Geography: Volume 1 - Australian Standard Geographical Classification (ASGC) (cat. no.1216.0).

### **Under enumeration**

See net undercount.

### **Usual residence**

See State or territory and Statistical Local Area of usual residence.

## **Abbreviations**

### **ABBREVIATIONS**

The following symbols and abbreviations are used in this product:

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AIGC	Australian Indigenous Geographical Classification
ASGC	Australian Standard Geographical Classification
Aust.	Australia
ERP	estimated resident population
ICC	Indigenous Coordination Centre
IREG	Indigenous Region
LGA	local government area
NSW	New South Wales
NT	Northern Territory
PES	post-enumeration survey
Qld	Queensland
RA	Remoteness Area
RSE	relative standard error
S/T	state or territory
SA	South Australia
SD	statistical division
SE	standard error
SLA	statistical local area
SSD	statistical subdivision

Tas.	Tasmania
TSRA	Torres Strait Regional Authority
Vic.	Victoria
WA	Western Australia

## Quality Declaration - Summary

### QUALITY DECLARATION SUMMARY

#### INSTITUTIONAL ENVIRONMENT

For information on the institutional environment of the Australian Bureau of Statistics (ABS), including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see ABS Institutional Environment.

#### RELEVANCE

This publication contains final experimental estimates of the Aboriginal and Torres Strait Islander (Indigenous), non-Indigenous and total populations of Australia at 30 June 2006, based on results of the 2006 Census of Population and Housing. Estimates are disaggregated by age and sex for Australia, states/territories, Remoteness Areas and Indigenous Regions. Estimates for Statistical Local Areas are available for total all ages only.

#### TIMELINESS

Estimates of the Indigenous and non-Indigenous populations are produced for 30 June of each census year. Preliminary estimates for 30 June 2006 were released on 24 September 2007 in Australian Demographic Statistics, March Quarter 2007 (cat. no. 3101.0). Final estimates for 30 June 2006 were released on 19 August 2008 in Experimental Estimates of Aboriginal and Torres Strait Islander Australians (cat. no. 3238.0.55.001).

A time series of estimates of the Indigenous population, based on estimates from the most recent census, are produced once every five years. Estimates for the period 1991 to 2005 are scheduled for release in September 2009 in **Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021** (cat. no. 3238.0).

#### ACCURACY

The estimates presented in this publication are based on results of the 2006 Census of Population and Housing, adjusted for net undercount as measured by the Post Enumeration Survey.

The goal of the census is to obtain a complete measure of the number and characteristics of people in Australia on census night and their dwellings. To achieve this, extensive effort is put into census form design, collection procedures, and processing procedures. For further

information on sources of error in the census, see the Explanatory Notes.

In a large and complex exercise such as the census, it is inevitable that a small number of people will be missed and some will be counted more than once. In Australia, more people are missed from the census than are counted more than once. The net effect when both factors are taken into account is net undercount.

The ABS conducts the Post Enumeration Survey shortly after the census to determine how many people were missed in the census and how many were counted more than once. For 2006, the net undercount of the Indigenous population was 59,200 persons.

There were 1,133,300 census records (5.7% of the total census count) with unknown Indigenous status in the 2006 census. For the purposes of population estimates, these records are allocated to either Indigenous or non-Indigenous according to other demographic characteristics from the census. For a detailed discussion of unknown Indigenous status in the 2006 census see *Interpreting The Data in Population Distribution, Aboriginal and Torres Strait Islander Australians, 2006* (cat. no. 4705.0).

The extent of undercoverage of Aboriginal and Torres Strait Islander Australians in the 2006 census and the relatively small sample size of the Post Enumeration Survey to adjust for that undercoverage means the estimates should be interpreted with caution.

For more information see *Technical Note: Estimated Aboriginal and Torres Strait Islander Australian Resident Population – Method of Calculation*.

## COHERENCE

The estimates presented in this publication are not consistent with, and should not be compared with, estimates based on 2001 or other censuses, for a number of reasons including:

- changes in census collection methodologies over time, and in particular, in the Indigenous Enumeration Strategy used in the census – see *Interpreting The Data in Population Distribution, Aboriginal and Torres Strait Islander Australians, 2006* (cat. no. 4705.0);
- unexplained growth in the Indigenous population between censuses – see *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2009* (cat. no. 3238.0); and
- changes in methodology and scope of the Post Enumeration Survey over time – for more information on the PES, see *Information Paper: Measuring Net Undercount in the 2006 Population Census, 2007* (cat. no. 2940.0.55.001), *Research Paper: An Estimating Equation Approach to Census Coverage Adjustment, May 2007* (cat. no. 1351.0.55.019), *Census of Population and Housing - Undercount, 2006* (cat. no. 2940.0) and *Census of Population and Housing - Details of Undercount, Aug 2006* (cat. no. 2940.0).

Estimates of the Indigenous population for the period 1991 to 2005, based on the 2006 estimates presented in this publication, are scheduled for release in September 2009 in ***Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021*** (cat. no. 3238.0).

## INTERPRETABILITY

This publication contains detailed Explanatory Notes, a Technical Note, Appendices and Glossary that provide information on the data sources, terminology, classifications and other technical aspects associated with these statistics.

## **ACCESSIBILITY**

Estimates of the Indigenous and non-Indigenous populations of Australia are available on the ABS website under the 3238.0.55.001 product family, as:

- Main Features, which contains summary commentary; and
- data cubes (in Microsoft Excel spreadsheet format).

If the information you require is not available as a standard product, then ABS Consultancy Services can help you with customised services to suit your needs. The ABS observes strict confidentiality protocols as required by the Census and Statistics Act 1905. This may limit access to data at a very detailed level. For inquiries contact the National Information and Referral Service on 1300 135 070 or email [client.services@abs.gov.au](mailto:client.services@abs.gov.au).

## **Data Cubes (I-Note) - Data Cubes**

### **15 September 2009 - Additional material**

Information in this data cube supplements that released in *Experimental Estimates of Aboriginal and Torres Strait Islander Australians, Jun 2006* (cat. no. 3238.0.55.001) on 19 August 2008.

This additional data cube presents final experimental estimates of the Aboriginal, Torres Strait Islander, both Aboriginal and Torres Strait Islander, total Indigenous, non-Indigenous and total populations of Australia as at 30 June 2006, based on the 2006 Census of Population and Housing.

Estimates are disaggregated by age (5-year groups) and sex for Torres Strait Indigenous Region, Balance of Queensland, Queensland, Rest of Australia, and Australia. State and territory totals are available by sex.

## **Estimated Aboriginal and Torres Strait Islander Australian Resident Population – Method of Calculation (Technical Note)**

### **TECHNICAL NOTE ESTIMATED ABORIGINAL AND TORRES STRAIT ISLANDER AUSTRALIAN RESIDENT POPULATION – METHOD OF CALCULATION**

#### **INTRODUCTION**

**1** This technical note outlines the method by which the Australian Bureau of Statistics (ABS)

used data from the 2006 Census of Population and Housing and Census Post Enumeration Survey (PES) to produce final rebased estimates of the Aboriginal and Torres Strait Islander (Indigenous) population for 30 June 2006.

## THE CENSUS POST ENUMERATION SURVEY

**2** While every effort is made to ensure full coverage of people and dwellings in Australia in the census, small numbers of people will inevitably have been missed while others will have been counted more than once. In Australia more people are missed from the census than are counted more than once. The net effect of overcount and undercount is called net undercount.

**3** To measure net undercount of the Australian population, the ABS conducts the PES shortly after the census. The PES is a sample survey that provides an independent check of census coverage. In 2006, the survey had a sample of around 40,000 households (approximately 88,000 persons). In PES processing, the survey information from the PES dwelling is matched against corresponding census forms for either the same census dwelling, or for a dwelling nominated by the PES respondent as a likely census night address, to determine whether each resident of the PES household was counted in the census. The PES also provides information about the consistency of data across the two collections.

**4** The 2006 PES introduced several methodological changes including extending the scope of the survey to remote areas of Australia and discrete Indigenous communities. A new estimation method was also introduced. For more details on the PES, see [Census of Population and Housing - Undercount, 2006](#) (cat. no. 2940.0), [Information Paper: Measuring Net Undercount in the 2006 Population Census, 2007](#) (cat. no. 2940.0.55.001), [Research Paper: An Estimating Equation Approach to Census Coverage Adjustment, May 2007](#) (cat. no. 1351.0.55.019) and [Census of Population and Housing - Details of Undercount, Aug 2006](#) (cat. no. 2940.0).

### Net undercount

**5** The PES estimate of the Indigenous population at the time of the 2006 census was 514,000 people. This compares with the census count for Australia (excluding Other Territories) of 454,800 Indigenous people. This census count of Indigenous people excludes people whose Indigenous status was unknown in the census (see below). The Indigenous net undercount (the difference between the PES Indigenous population estimate and the actual Indigenous population census count) was 59,200 persons.

#### Net undercount, Indigenous status - 2006<sup>(a)</sup>

	PES estimate(b)	Census count	Net undercount(c)	Undercount adjustment factor(d)
	no.	no.	no.	no.
Indigenous	513 977	454 799	59 178	1.130
Non-Indigenous	19 888 482	18 264 880	1 623 602	1.089
Not stated	..	(e)1 133 294	..	..
Total	20 402 459	19 852 973	549 486	1.028

.. not applicable

(a) Excludes Other Territories.

(b) PES estimates of the population that should have been counted in the 2006 census.

- (c) Difference between PES estimate and the census count.
- (d) Ratio of the PES estimate to the census count.
- (e) Census records where Indigenous status was unknown because the census form was not received or only partially completed.

## **UNKNOWN INDIGENOUS STATUS**

**6** There were 1,133,300 census records (5.7% of the total census count) with unknown Indigenous status in the 2006 census. Of these, 29% (or 1.7% of the total census count) were a result of item non-response; that is, the ABS received a partially completed census form for the person but with the Indigenous status question unanswered. The remaining and majority (71%) of records with unknown Indigenous status (4.1% of the total census count) were a result of imputation by the ABS for people who were identified as resident in dwellings (both private and non-private) at the time of the census but for whom no census form was received. While some of the records with unknown Indigenous status will be for people of Aboriginal and/or Torres Strait Islander origin and others for non-Indigenous people, no imputation was made for Indigenous status on the census file. For a detailed discussion of unknown Indigenous status in the 2006 census see Commentary: Interpreting the data in the ABS publication Population Distribution, Aboriginal and Torres Strait Islander Australians, 2006 (cat. no. 4705.0).

## **CALCULATING ESTIMATED RESIDENT POPULATION - PRELIMINARY**

**7** Estimated resident population (ERP) for Australia and the states and territories are compiled using the census, PES and other demographic information.

**8** The census provides detailed information on the age and sex structure and location of the population, but it misses some people who should have been counted in the census. In addition, while census records with unknown Indigenous status remain not stated on the census file, for the purposes of population estimation they are allocated to either Indigenous or non-Indigenous according to the distribution of stated responses within each age group, sex, census form type and geographic area (Statistical Local Area).

**9** Preliminary PES estimates of net undercount for Indigenous persons in the 2006 census were used at the national level and for five jurisdictional groups. These were:

- New South Wales/Australian Capital Territory;
- Victoria/South Australia/Tasmania;
- Queensland;
- Western Australia; and
- Northern Territory.

**10** Some level of geographic grouping was considered necessary because of the high sampling error for some states/territories.

**11** The geographic level to which the 2006 PES results were disaggregated for ERP purposes was determined after consideration of the sampling error and possible bias resulting from the groupings. The Relative Standard Error (RSE) of the estimates of the Indigenous population in the five jurisdictional groups ranged from 3.5% for the Northern Territory (NT) to 7.3% for Western Australia (WA). The RSE for Australia (excluding Other Territories) was 2.6%.

## CALCULATING ESTIMATED RESIDENT POPULATION - FINAL

**12** The method for calculating PES estimates used for preliminary ERP was subsequently reviewed by ABS. The standard errors on the preliminary undercount rates (using the 5 group method) were high, leading to high sampling error for the state/territory ERP estimates. In particular the high Indigenous undercount in WA (a single-state group) was subject to very high sampling error which limited the confidence that could be placed in the estimates.

**13** In light of these concerns, a study was undertaken to determine a way of producing more reliable Indigenous undercount adjustment rates for individual states/territories than were available by using a single smoothed undercount adjustment (as was done in 2001) or by using PES estimates separately for individual states/territories or for state/territory groups. The result of the study was that an Empirical Bayes method was chosen.

### Empirical Bayes estimation

**14** The Empirical Bayes method was applied to the undercount adjustment rate for 15 regions (each state and the NT split into capital city and balance of state, and the Australian Capital Territory (ACT)). The undercount adjustment rate is the ratio between the PES estimate of the Indigenous population and the value obtained from the census after assigning an Indigenous status to records where it was unknown (as described in paragraph 8). The Empirical Bayes method assigned each region a mix of its own PES estimate of the undercount adjustment rate, and an overall estimate based on all the regions.

**15** The mix used was dependent on the standard error of the PES estimate, with regions with high standard errors being more influenced by the national estimate, while regions with lower standard errors receive a greater proportion of their individual region estimate.

**16** The overall amount of smoothing used was determined by a smoothing constant. The ABS used the 'method of moments' constant from a technique developed by Morris (1983), after checking that the indicated value gave estimates with a suitably low standard error conditional on the chosen constant. For more information on Empirical Bayes and the method of moments estimator see Everson (2007, p.54).

**17** Estimates of the Indigenous population of the states and territories for 8 August 2006, as a result of adopting the Empirical Bayes method, are shown in the table below.

**Results from Empirical Bayes estimation, State/territory<sup>(a)</sup>**

	Census count (no imputation)	Indigenous population at Census date	Undercount rate			
	no.	no.	Standard error	Relative standard error (%)	%	Standard error (%) pts
NSW	138 505	151 510	5 707	3.77	8.58	3.44
Vic.	30 144	33 266	976	2.93	9.39	2.66
Qld	127 581	144 375	4 289	2.97	11.63	2.63
SA	25 556	27 954	895	3.20	8.58	2.93
WA	58 710	70 371	2 669	3.79	16.57	3.16
Tas.	16 767	18 386	510	2.77	8.81	2.53
NT	53 662	63 864	1 764	2.76	15.97	2.32
ACT	3 874	4 250	118	2.77	8.85	2.53

Australia	454 799	513 977	13 309	2.59	11.51	2.29
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(a) Conditional on the method of movements value of the smoothing constant.

**18** Estimates of the Indigenous (and non-Indigenous) population were then adjusted to include Australian residents temporarily overseas at the time of the census (8 August 2006) and backdated to the estimated resident population reference date of 30 June 2006 using data on births, deaths, and interstate and overseas migration. Estimates were also assumed for net undercount in Other Territories, which were added to the census count of Indigenous people identified as being usually resident in those territories. At the national level, this resulted in a net increase of 3,100 from the 2006 PES estimate of 514,000 Indigenous people (excluding Other Territories) at 8 August 2006 to the final estimate of the resident Indigenous population at 30 June 2006 of 517,000 (including Other Territories).

**19** The table below shows final Indigenous ERP compared with preliminary Indigenous ERP, as well as projections of the Indigenous population based on results of the 2001 census, for 30 June 2006. For Australia, the final estimates are around 150 persons lower than the preliminary estimate. The WA estimate has the highest numeric change, decreasing by 7,000 or 8.9%. Other states/territories with large changes are NSW (up by 4,500 or 3.0%), Victoria (up by 2,700 or 8.7%) and Tasmania (up by 1,500 or 9.0%).

#### Experimental Indigenous ERP, State/territory, Preliminary and final rebased - 30 June 2006

	Indigenous ERP				Indigenous projections(a)	
	Preliminary no.	Final no.	Difference no.	%	Low series no.	High series no.
NSW	148 178	152 685	4 507	3.04	146 159	163 141
Vic.	30 839	33 517	2 678	8.68	30 988	35 031
Qld	146 429	144 885	-1 544	-1.05	139 527	151 825
SA	26 044	28 055	2 011	7.72	28 105	29 550
WA	77 928	70 966	-6 962	-8.93	72 243	77 113
Tas.	16 900	18 415	1 515	8.96	18 586	18 982
NT	66 582	64 005	-2 577	-3.87	61 232	61 886
ACT	4 043	4 282	239	5.91	4 396	5 115
Australia(b)	517 174	517 043	-131	-0.03	501 479	542 886

(a) Projected Indigenous population at 30 June 2006, based on 2001 Census.

(b) Includes Other Territories.

**20** The final Indigenous ERP for 30 June 2006 (517,000 persons) was higher than the 8 August 2006 census count (454,800 persons). This difference (up 13.7% or 62,200 persons) represents the combined and net effects of census net undercount (including people whose Indigenous status was unknown in the census), residents temporarily overseas on census night, demographic adjustments, and backdating to 30 June. The highest proportional increases from census count to final ERP were in WA (up 20.9%) and the NT (up 19.3%).

#### Sub-state/territory Indigenous estimates

**21** The PES is the best available data source for determining what the Indigenous population should have been on census night, if the complete population was counted. However, as standard errors on the PES are too high for reliable estimates of the Indigenous population to be produced at sub-state/territory levels, census is the only data

source for calculating estimates of the Indigenous population for geographic areas smaller than a state or territory.

**22** In producing estimates of the Indigenous and non-Indigenous populations of Statistical Local Areas (SLAs), PES estimates produced by the Empirical Bayes method for each state/territory were used as upper level constraints on the SLA-level Indigenous populations as at census night. State/territory net undercount was distributed pro-rata to individual SLAs, having regard to capital city/balance of state undercount for the total population according to their demographic characteristics such as age and sex.

**23** It is important to note that at the sub-state/territory level, differences between census counts and estimates of the Indigenous population are not indicative of, nor should be interpreted as, the true level of undercount; rather, these differences are a by-product of the assumptions that contribute to the estimation process.

### Plans for further output

**24** A time series of Indigenous population estimates and projections is scheduled for release in August 2009 in **Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021** (cat. no. 3238.0).

### FURTHER INFORMATION

**25** Related ABS publications and references that may be of interest to users of this product include:

- [Australian Demographic Statistics](#) (cat. no. 3101.0)
- [Census of Population and Housing - Undercount, 2006](#) (cat. no. 2940.0).
- [Census of Population and Housing - Details of Undercount, Aug 2006](#) (cat. no. 2940.0)
- [Demographic Estimates and Projections: Concepts, Sources and Methods, 1999](#) (cat. no. 3228.0)
- [Information Paper: Measuring Net Undercount in the 2006 Population Census, 2007](#) (cat. no. 2940.0.55.001).
- [Occasional Paper: Population Issues, Indigenous Australians, 1996](#) (cat. no. 4708.0)
- [Research Paper: An Estimating Equation Approach to Census Coverage Adjustment, May 2007](#) (cat. no. 1351.0.55.019).

### REFERENCES

**26** Other references that may be of interest are:

- Everson, P. (2007). **A Statistician reads the sports pages, Stein's Paradox Revisited**. *Chance*. Vol. 20 (Issue 3):49-56.
  - Morris, C. (1983). **Parametric Empirical Bayes Inference: Theory and Applications**. *Journal of the American Statistical Association*. 78(381): 47-55.
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